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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,811	05/26/2000	Gyudong Kim	4626	7704

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EXAMINER

KIM, JUNG W

ART UNIT	PAPER NUMBER
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2132

DATE MAILED: 06/04/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/579,811

Applicant(s)

KIM ET AL.

Examiner

Jung W Kim

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 1-21 have been examined.

Claim Objections

2. Claim 13 is objected to because of the following informalities: in claim 13, there is a period in place of a semicolon (see page 23, line 8). Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 10 recites the limitation "the M-bit LFSR". There is insufficient antecedent basis for this limitation in the claim. To further examination, the examiner will interpret claim 10 to be dependent on claim 9.
6. Claims 11 and 12 recite the limitation "the TMDS code space". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1-3, 5, 13, and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Lee et al. U.S. Patent No. 5,825,824 (hereinafter Lee). As per claim 13, Lee discloses an apparatus for encryption of digital data for transmission from a transmitter to a receiver (see Lee, Figure 2), the apparatus comprising:

- a. a communication link having a first end and a second end (see Lee, Figure 1, Reference No. 30),
- b. a video transmitter coupled to the first end of the communication link (see Lee, col. 1, lines 34-52, Figure 2), the video transmitter comprising
 - i. means for receiving digital data (see Lee, Figure 2, Reference No. 70);
 - ii. transition controller for performing transition controlled encoding of the provided digital data to produce encoded digital data (see Lee, Figure 2, Reference No. 82);
 - iii. XOR mask logic for performing XOR masking of the encoded digital data with an XOR mask to produce masked digital data (see Lee, Figure 7A, Reference No. 240);

- iv. DC balancing logic for DC balancing the masked digital data to produce DC balanced, masked digital data (see Lee, Figure, 2, Reference No. 98);
 - v. scrambling logic for scrambling the DC balanced, masked digital data using a scrambling formula to produce encrypted digital data (see Lee, col. 17, line 43-col. 18, line 34); and
 - vi. means for transmitting the encrypted digital data (see Lee, Figure 1; Figure 2, Reference No. 104); and
- c. a video receiver coupled to the second end of the communication link for receiving the encrypted digital data (see Lee, Figure 1).

The aforementioned covers claim 13.

9. As per claim 15, Lee covers an apparatus as outlined above in the claim 13 rejection under 35 U.S.C. 102(a). In addition, pixel data is the standard basic unit of a picture image transmitted as digital data. Hence, any encoding apparatus for a video transmitter necessarily operates on digital data in sets of pixel data. The aforementioned covers claim 15.

10. As per claims 1-3 and 5, they are method claims corresponding to claims 13 and 15, and they do not teach or define above the information claimed in claims 13 and 15. Therefore, claims 1-3 and 5 are rejected as being anticipated by Lee for the same reasons set forth in the rejections of claim 13 and 15.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 4, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Widmer et al. "A DC-balanced, Partitioned-Block, 8B/10B Transmission Code" (hereinafter Widmer). As per claim 14, Lee covers an apparatus as outlined above in the claim 13 rejection under 35 U.S.C. 102(a). Lee does not expressly disclose means for breaking up the digital data into a first and second portion. Widmer teaches an apparatus wherein an 8B input is separated into a 5B and 3B

portion, both data portions being operated on by the apparatus (see Widmer, page 443, Figure 1, '5B/6B encoding switch' and '3B/4B encoding switch'). It would be obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Widmer to the invention disclosed by Lee. Widmer teaches motivation for such an implementation: this type of transmission code is well suited for high-speed local area networks and similar data links (see Widmer, Abstract).

14. As per claim 4, it is a method claim corresponding to claim 14 and it does not teach or define above the information claimed in claim 14. Therefore, claim 4 is rejected as being unpatentable over Lee in view of Widmer for the same reasons set forth in the rejection of claim 14.

15. As per claim 20, Lee covers a method as outlined above in the claim 14 rejection under 35 U.S.C. 103(a). In addition, the method comprises the steps of:

- a. performing transition controlled encoding of a first sequence of n bit data words into encoded $n+1$ bit data characters where the n is a positive integer (see Lee, Figure 7A, $D[7]-D[0]$ and $E[8]-E[0]$),
- b. DC balancing the encoded $n+1$ bit data characters to produce DC balanced, masked $n+2$ bit data characters (see Lee, Figure 7B-2, $E[8]-E[0]$ and $T[9]-T[0]$);

- c. encoding control data into encoded $n+2$ bit control characters (see Lee Figures 7A and 7A-2 as modified by Widmer, page 443, first bullet, 'control line K', Figure 1, Reference K),
- d. encrypting the encoded $n+2$ bit control characters to produce $n+2$ bit encrypted control characters (see Lee, Figure 11 as modified by Widmer, page 443, first bullet, Figure 1),
- e. generating a serial data stream in response to the encrypted data characters and encrypted control characters, and transmitting the serial data stream over a communication link (see Lee, col. 4, lines 34-38).

The aforementioned covers claim 20.

16. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Widmer, and further in view of Halsall Data Communications, Computer Networks and Open Systems Fourth Edition (hereinafter Halsall). As per claim 21, Lee covers a method as outlined above in the claim 20 rejection under 35 U.S.C. 103(a). Although Lee does not expressly disclose including information regarding the timing of transmission of another encoded control character in the encoded control characters (see applicant's specification, page 16, final paragraph for fuller explanation of 'timing of transmission'), inclusion of control information to synchronize frames are standard means in the art. As an example, Halsall teaches several control characters to define sampling instances within the transmission (see Halsall, pages 123-125, section 3.3.3). It would be obvious to one of ordinary skill in the art at the time the invention was made

to apply the teaching of Halsall to the invention covered by Lee. Motivation for such an implementation enables the receiver to synchronize with the sender during a transmission as taught by Halsall.

17. Claims 6-8, 11-12, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Widmer, and further in view of Case U.S. Patent No. 5,720,034 (hereinafter Case). As per claim 16, Lee covers an apparatus as outlined above in the claim 14 rejection under 35 U.S.C. 103(a). Lee is silent on providing means for exchanging a master key between the transmitter and the receiver to derive slave keys for the portions of data. Case teaches a method for secure key generation wherein a master key is shared between two hosts to generate a shared secure slave key without the slave key being transmitted over the network (see Case, col. 4, lines 30-44; col. 5, lines 5-25). In addition, Case teaches creating multiple distinct slave keys from one master key using multiple distinct pseudorandom numbers; these slave keys are used by the transmitter and receiver to encrypt/decrypt transmitted data (see Case, col. 6, lines 9-24). It would be obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Case to the invention covered by Lee. Motivation for such an implementation would enable secret keys to be shared between two hosts without transmitting the secret keys between the hosts as taught by Case (see Case, Abstract). Finally, the means to generate multiple slave keys from a master key enables the invention covered by Lee to generate a plurality of keys for a plurality of portions of data. The aforementioned covers claim 16.

18. As per claim 17, Lee covers an apparatus as outlined above in the claim 16 rejection under 35 U.S.C. 103(a). In addition, the apparatus includes means for selecting first and second XOR masks based on information from the first and second slave keys, respectively, the first and second XOR masks being used by the XOR masking means for XOR masking the first and second portions of data, respectively (see Lee, Figure 7A as modified by Widmer, page 449, Figures 7 and 8, and Case, col. 5, lines 5-25 and 40-65).

19. As per claim 18, Lee covers an apparatus as outlined above in the claim 16 rejection under 35 U.S.C. 103(a). In addition, the apparatus includes means for selecting first and second scrambling formulas based on information obtained from the first and second slave keys, respectively, the first and second scrambling formulas being used by the scrambling means for scrambling the first and second portions of digital data, respectively (see Lee, Figure 11 as modified by Widmer, page 443, bullet 'code definition' and Case, col. 5, lines 5-25 and 40-65).

20. As per claims 6-8, they are method claims corresponding to claims 16-18 and they do not teach or define above the information claimed in claims 16-18. Therefore, claims 6-8 are rejected as being unpatentable over Lee in view of Widmer and Case for the same reasons set forth in the rejections of claims 16-18.

21. As per claims 11 and 12, Lee covers an apparatus as outlined above in the claim 7 and 8 rejections under 35 U.S.C. 103(a). In addition, the XOR masks and scrambling means preserve TMDs code space (see Lee, col. 5, lines 25-59, especially lines 27-30; col. 6, lines 55-67, Table 1; see applicant's specification, page 12, second paragraph).

Allowable Subject Matter

22. Claims 9, 10 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mildonian, Jr. U.S. Patent No. 3,649,915.

Ibaraki et al. U.S. Patent No. 5,546,461.

Chu U.S. Patent No. 6,345,330.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W Kim whose telephone number is (703) 305-8289. The examiner can normally be reached on M-F 9:00-6:00.

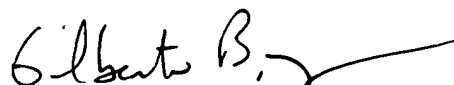
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (703) 305-1830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jung W Kim
Examiner
Art Unit 2132

Jk
May 28, 2004



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SUPERVISORY PATENT EXAMINER
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